

Applications of interoperable tools for

- data analysis
- model evaluation
- regulatory air quality decision support.

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ESIP 2014 Winter Meeting, Jan 10, 2014

AQ Community Catalog

[Help](#)

Air Quality Community Catalog

Air Quality
Community
of Practice

SELECT Data

Home
Browse Data

Dataset
Platform

[Parameter](#)

- All
- Count
- CIESIN_POP_IMG
- Model
- INTEX-B
- CMAQ_CONUS
- ATADV
- NAAPS_sigma
- MACC
- Network
- EMEP
- GSOD
- AQS_D
- AQS_H
- AIRNOW
- AERONET_H
- AirBase_H
- AirBase_D
- AERONET_D
- NAMP
- ThaiAQ
- GSurfMet
- VIEWS
- GlobCoal
- Satellite
- wms_
- MISR
- MODIS4
- TOMS_AI_G
- EDAC
- OMNO2_G
- OMSO2_G
- OMAERUV_G
- OMNO2_Ig

- All
- O3
- PM1
- PM10
- PM25
- SO2
- Sulf_PM25
- Sulf_Tot
- TSP

Data Summary

AirBase_D : AirBase - The European air quality database - Daily Data

Originator: [EEA_AirBase](#)

Distributor: [DataFed](#)

Dataspace: [Wiki](#)

Domain: [Aerosol](#)

Timerses: [Day](#)

Datatypes: [Point](#)

Platform: [Network](#)

Method: [Unknown](#)

Instructions: [Unknown](#)

Access Count

Access Fail %

Transfer Rate

Data Access 2012-04-01-2012-09-03

AirBase_D:PM25:091214

Originator: EEA_AirBase Distributor: DataFed : 2012-09-03

AirBase_D:PM25:CZ0HRNK

Originator: EEA_AirBase Distributor: DataFed : 2012-09-03

AirBase_D:PM25:CZ0HRNK

Originator: EEA_AirBase Distributor: DataFed : 2012-09-03

AirBase is the air quality information system maintained by the EEA through the European topic centre on Air and Climate Change. It contains air quality data delivered annually under 97/101/EC Council Decision establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States (EoI Decision).

OMSO2_G

OMAERUV_G

OMNO2_Ig

AOT_1640

AOT_340

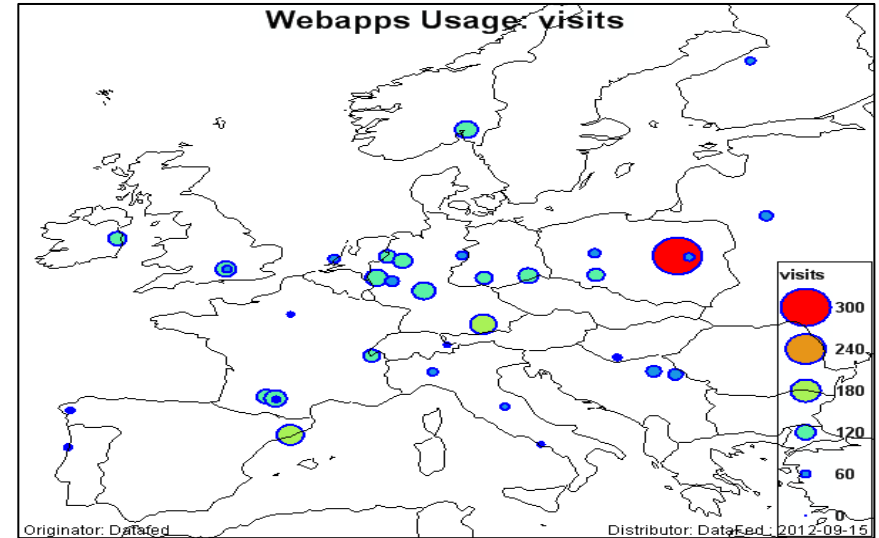
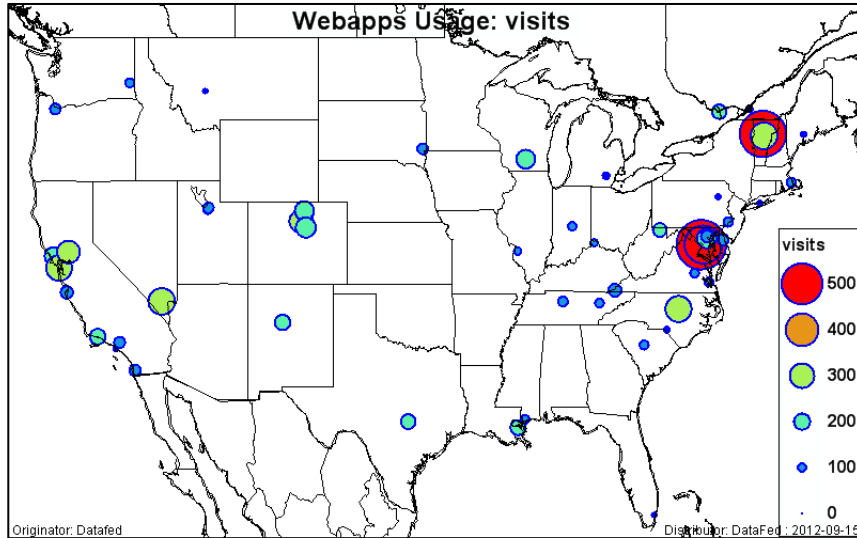
AOT_380

80 1983 1986 1990 1993 1995 2000 2003 2006 2010

Since 2008, DataFed is used globally

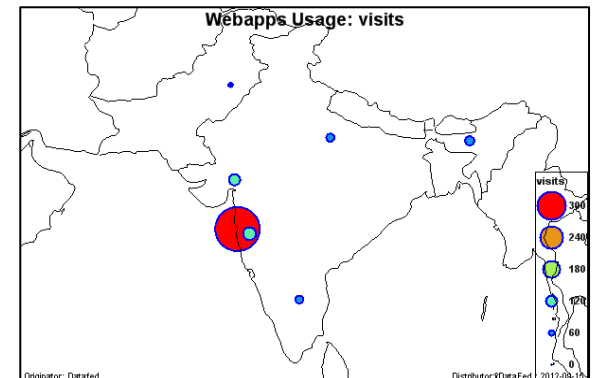
DataFed Usage Metric by Google Analytics: Data Access by top 100 Users

Top 100 user averages: 70 visits; 6:20 minutes per session; 4.5 per pages/session



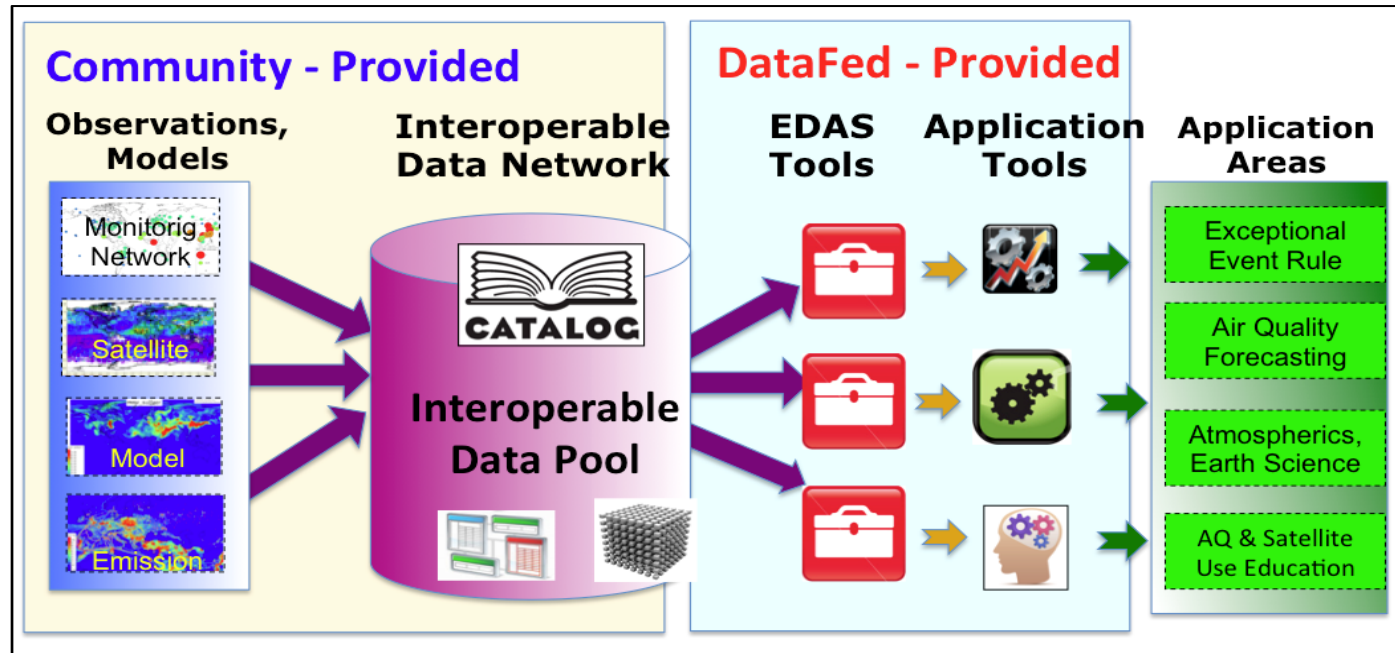
Top User Sites, Visits

Mumbai, India,	742 : AQ analysis, research
Washington DC,	736: ?
Waterbury, VT,	642: AQ Forecasting, NE
Greenbelt, MD,	429: ?
Warsaw, PL,	242: AQ Analysis, research
Las Vegas, NV,	211: ?
Raleigh, NC,	202: ?



Exceptional Events Decision Support System (EE DSS)

Through Federated Data System, DataFed Architecture:



Flow of data



Flow of control



- Facilitated by the GEO AQ Community of Practice (GEO AQ CoP).
- The generic client tools for processing and visualization
- Specialized Application – such as EE DSS

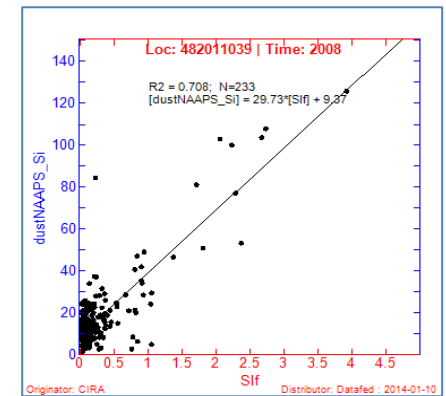
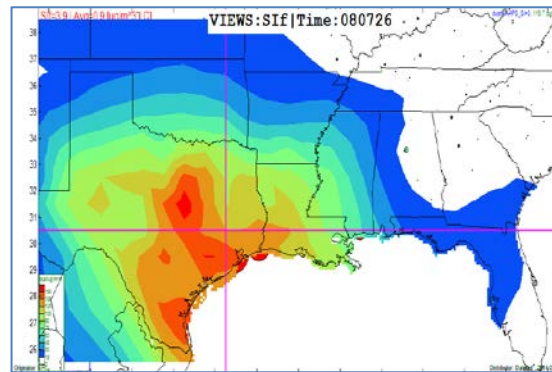
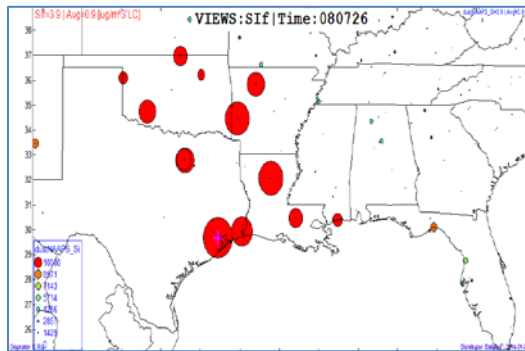
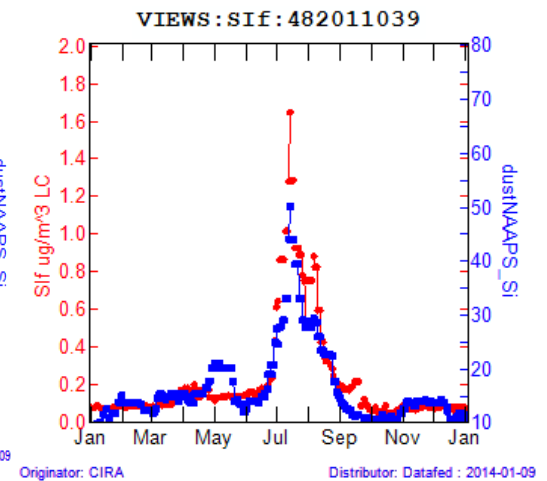
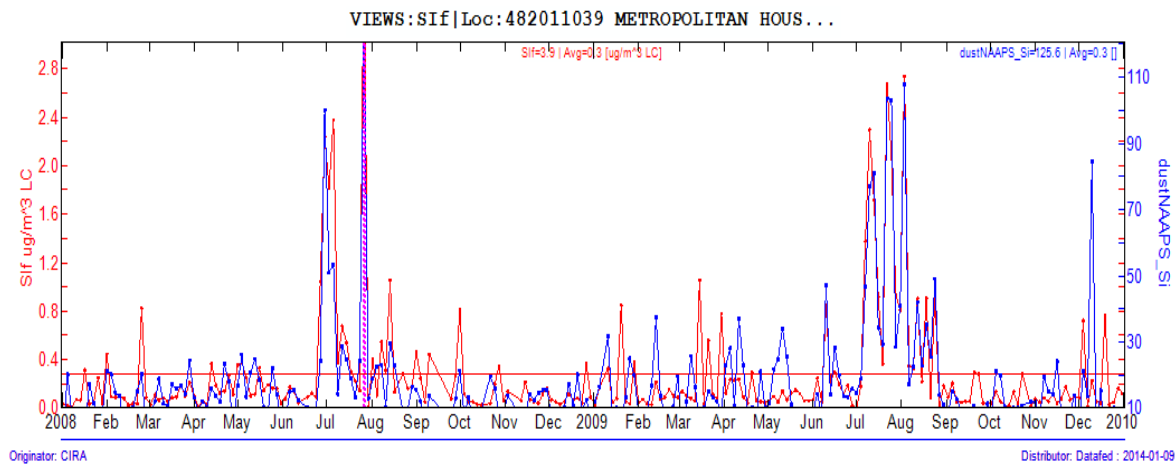
Supported by NASA grants 2004 - 2014



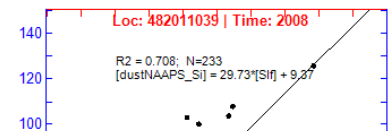
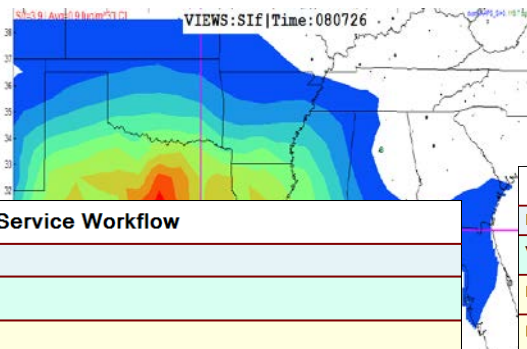
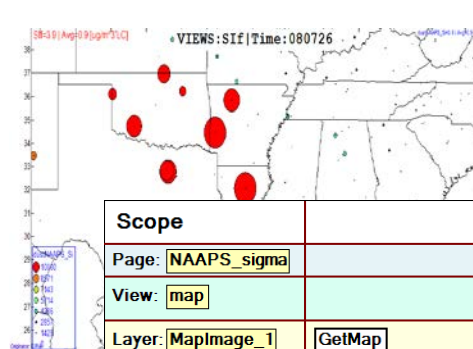
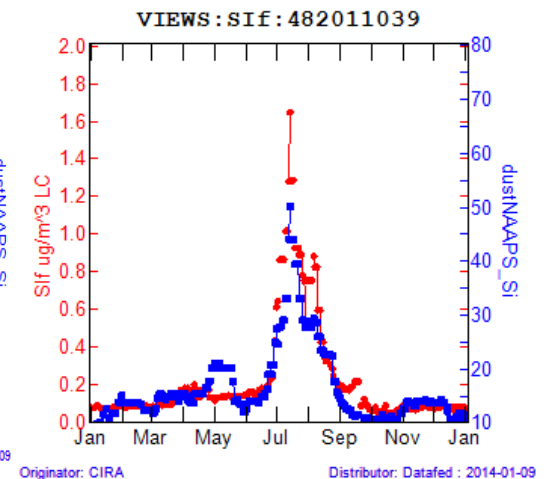
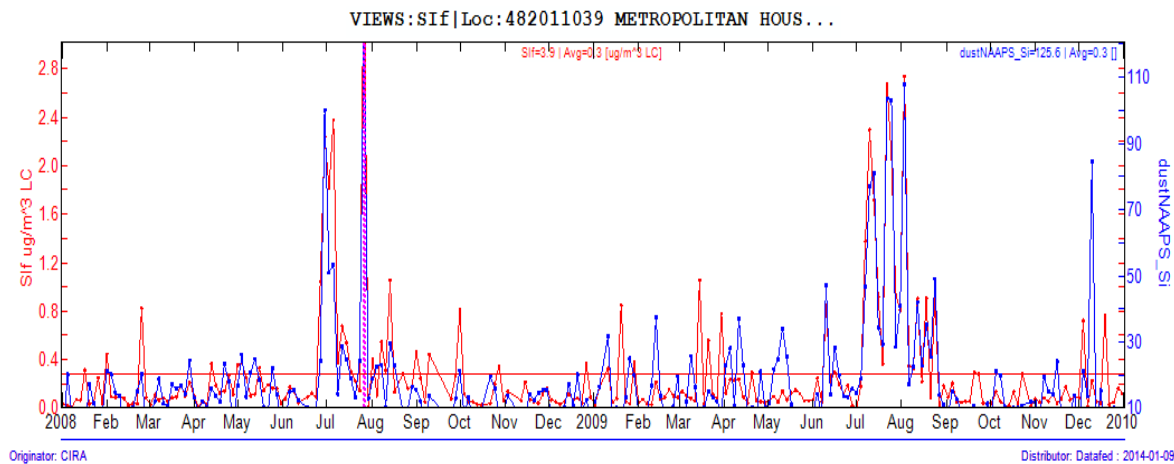
EPA



Data Views from the Network by Service Oriented Architecture



Data Views from the Network by Service Oriented Architecture

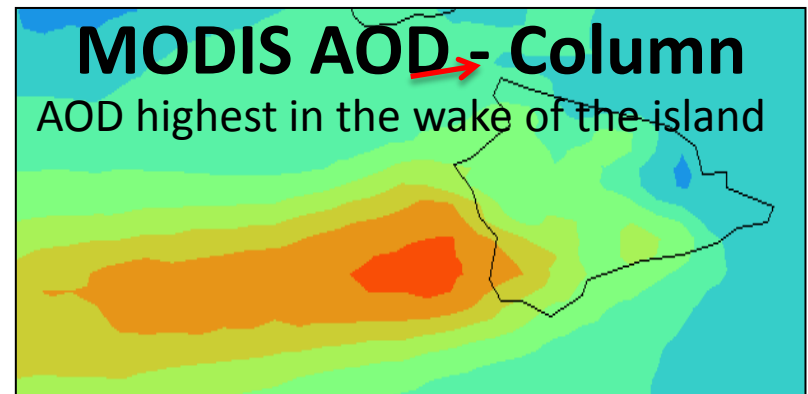
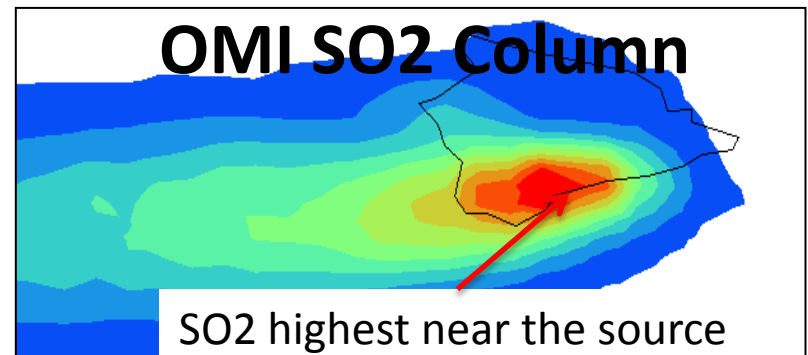
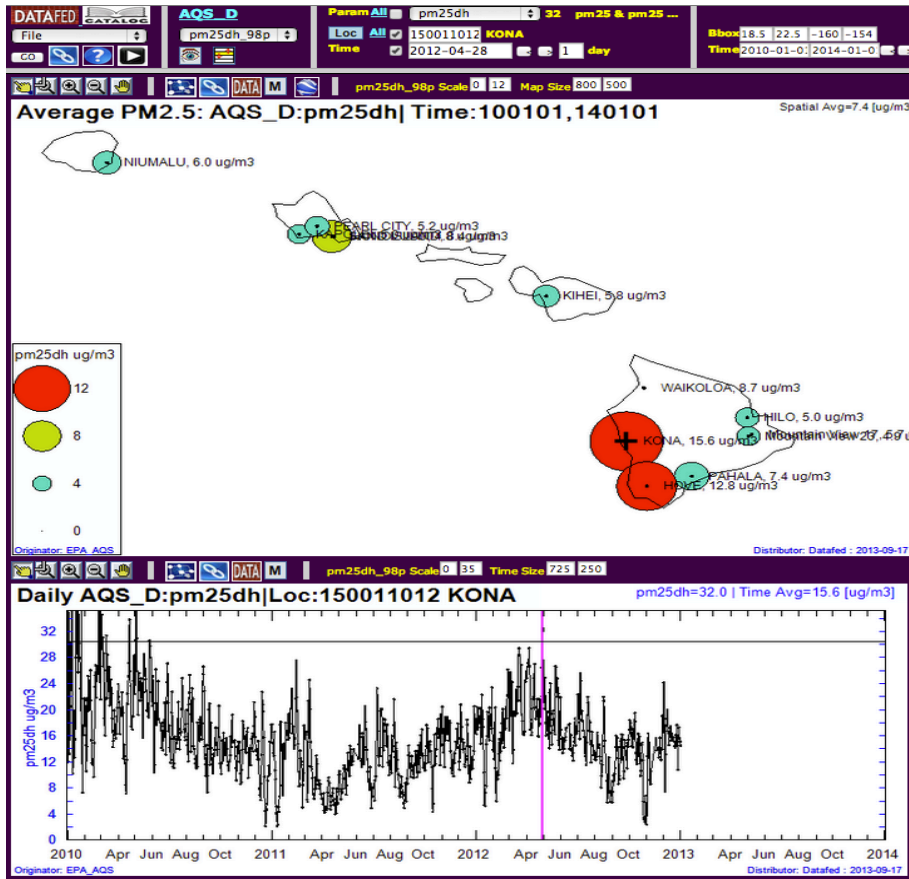


Scope	Service Workflow
Page: NAAPS_sigma	
View: map	
Layer: MapImage_1	GetMap
Layer: dust	GetData → Aggregate → SmoothGrid → RenderGrid
Layer: dustNAAPS_Si	GetData → Aggregate → FilterExpression → RenderPoints
Layer: Sif	GetData → Aggregate → FilterExpression → RenderPoints
Layer: SOILf_grd	GetData → Aggregate → FilterExpression → PointToGrid → SmoothGrid → RenderGrid

Scope	Service Workflow
Page: NAAPS_sigma	
View: pp_scatter	
Layer: MapImage_1	
Layer: dust	
Layer: dustNAAPS_Si	GetData → Aggregate → Dummy
Layer: Sif	ProcessTable → ProcessTable → RenderTable RenderTable GetData → Aggregate → Join → RenderTable
Layer: SOILf_grd	

EE Example: Hawaii Volcano Impact

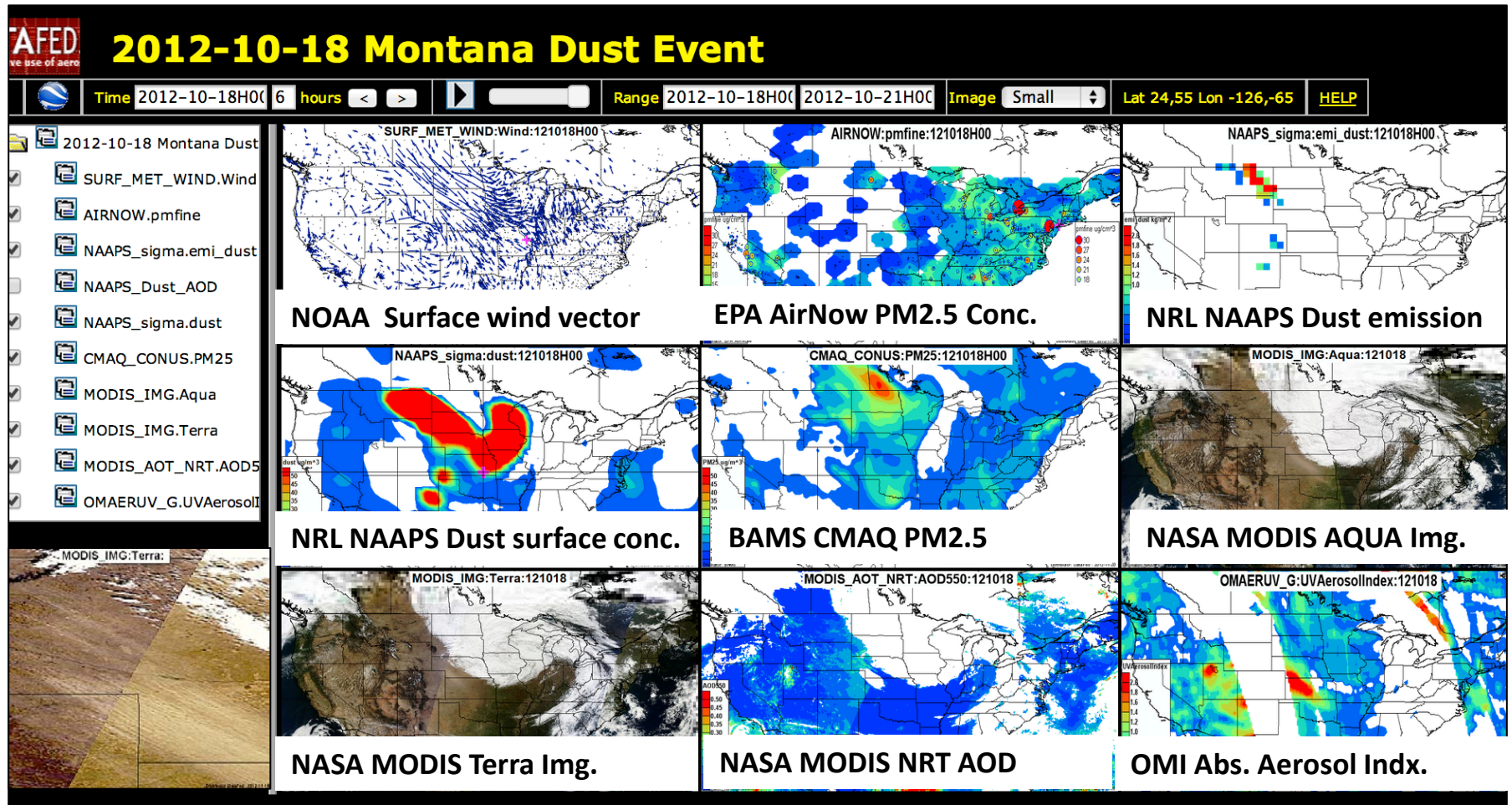
Why is the PM2.5 impact so far away from the SO2 source?



Showing 'Clear Causal Relationship' has to include evidence for SO2->SO4 conversion

EE example: Kansas dust plume impacting SE US

EE DSS Tool: Multi-sensory data console for documenting 'clear causal relationship'



Spatial Data Console:

Exceptional Events Decision Support System (EE DSS)

Once we have interoperable, shared data
we can collectively
build reusable tools for science and
management